

**Aviation Safety Investigation Report  
199401637**

**Robinson Helicopter Co  
R22**

**21 June 1994**

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**NOTE: All air safety occurrences reported to the ATSB are categorised and recorded. For a detailed explanation on Category definitions please refer to the ATSB website at [www.atsb.gov.au](http://www.atsb.gov.au).**

The Bureau did not conduct an on scene investigation of this occurrence. The information presented below was obtained from information supplied to the Bureau.

**Occurrence Number:** 199401637      **Occurrence Type:** Accident  
**Location:** Orange Creek Station  
**State:** NT      **Inv Category:** 4  
**Date:** Tuesday 21 June 1994  
**Time:** 1400 hours      **Time Zone:** CST  
**Highest Injury Level:** Serious  
**Injuries:**

	Fatal	Serious	Minor	None	Total
Crew	0	1	0	0	1
Ground	0	0	0	0	0
Passenger	0	1	0	0	1
<b>Total</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>

**Aircraft Manufacturer:** Robinson Helicopter Co  
**Aircraft Model:** R22  
**Aircraft Registration:** VH-HQX      **Serial Number:** 008  
**Type of Operation:** Miscellaneous Ferry  
**Damage to Aircraft:** Substantial  
**Departure Point:** Curtain Springs NT  
**Departure Time:**  
**Destination:** Alice Springs NT

**Crew Details:**

<b>Role</b>	<b>Class of Licence</b>	<b>Hours on Type</b>	<b>Hours Total</b>
Pilot-In-Command	Commercial	3500.0	6850

**Approved for Release:** Wednesday, April 17, 1996

Enroute from Curtain Springs to Alice Springs, while flying low and slow to observe cattle, the pilot heard a loud noise followed by an immediate increase in engine RPM and decrease in rotor RPM. An autorotational approach and landing was carried out into the rough hilly terrain, but the helicopter landed heavily and rolled over.

A subsequent investigation revealed that the clutch assembly upper bearing had failed allowing the engine drive to disconnect from the rotor system.

The bearing was a commercial bearing, not a genuine Robinson bearing, although the manufacturer's instructions clearly state that only genuine bearings, having the correct internal clearances, must be installed. A specialist report indicated that the failure was due to brinelling of the bearing races, possibly caused by the bearing being dropped or damaged during assembly of the clutch. There was also evidence that the bearing had not been sufficiently lubricated which would have decreased its time to failure.

Although the accident was survivable, severe spinal and lower back injuries were suffered by both occupants. It was reported that the space below the seats contained a number of hard items including a hand fuel pump. The flight manual for this type of helicopter, and placards placed near the under seat compartments caution against placing hard objects in them as they could cause injury to occupants if the seats crush while absorbing energy during a heavy landing.

#### **SAFETY ACTION**

As a result of the investigation, the Civil Aviation Authority issued Airworthiness Directive AD/R-22/39, which requires an inspection of the upper clutch actuator bearing of all R22 helicopters to ensure only approved parts are fitted.

